ABSTRACT OF THE DISCLOSURE

The present invention enables the rapid and large-scale production of mutants in crop plants. This is accomplished by utilizing a miniature plant which can be crossed with a commercial plant of the same species. Mutations are induced in the miniature cultivar, and the mutants subsequently identified in the resulting mutant plant population. Mutant genes of interest can be introgressed into a commercial cultivar by crossing selected mutant miniature plants with the commercial cultivar. Reverse genetics can be undertaken using a plant population of the miniature crop which contains random T-DNA or transposon insertion events and screening this population for insertions into genes of interest. Likewise, the miniature plant population is transformed with a DNA construct comprised of a promoter-less screenable marker gene within a mobile DNA. The mutants derived from this construct are rapidly screened for expression of the screenable marker gene and the promoter operably linked to the screenable marker gene in these transformants is cloned.